BioHaven Floating Islands

A Revolution in Stewardship

By Ryan Schultze

Growing up on a farm within the Chesapeake Bay watershed, I learned at an early age the value of land and the importance of careful management. The principle of conservation has stuck with me ever since.

As I grew, though, I became inclined to make a living where corn doesn't grow. I studied business for two years; then, I realized corporate America was not for me. In the summers of 05 and 06, I interned at a wetland delineation and mitigation company and my current education began. Working within the Bay watershed, I started to understand how delicate the ecosystem is. Wetlands are filters for pollutants on their way to ending up in the Bay.

I earned a B.S. in Business the following year, and enrolled in the IAA as an Agricultural Business Management major. During my first semester, I began working for a land and wildlife management company. Finally, my education and work experience were actually matching up, and it's a good thing because my family was getting tired of wondering what I was going to do with myself! The land and wildlife management company is a one-stop-shop, providing property management services, wildlife control, habitat improvement, and even wildlife foodplot implementation. Recently, though, we added another product and service to our lineup—one that is revolutionary to conservation practices—BioHavens. BioHavens? Let me explain.

BioHavens are floating islands made from layers of recycled plastic "matrix" which are bonded together with adhesive foam. BioHavens are planted with sod, garden plants, or wetland plants and launched onto a water body and anchored. There, the plants are allowed to grow naturally, and, as they develop, their roots grow through the matrix into the water below. Over time, a natural ecosystem evolves.

BioHavens are effectively a concentrated floating wetland. The huge surface area of fibers provides many times more surface area than an equivalent stretch of bare wetland. Surface area is the key factor for microbial activity to take place, and microbes (bacteria) are the key to removing contaminants from the water. Plants and their roots are also important, but more for the extra surface area the roots provide than for any nutrient uptake the plants themselves account for.

BioHavens, invented seven years ago, have been successfully trialed for five years, and have been on the market since July 2005. They represent a natural, convenient and cost-effective solution for some of the most intractable and expensive problems on the planet: "Polishing" wastewater and stormwater of nutrients and heavy metals to return it safely to the watershed, sequestering carbon dioxide and methane from effluent ponds to reduce global warming, wave mitigation and protection of levees in the event of severe storms, extraction of salt, mining nutrient loads (nitrate, phosphate, ammonia) from any waterway and reducing algal blooms, restoring wetlands without the need for new land, and restoring habitat for endangered species. BioHaven floating islands are truly a revolutionary water stewardship tool and I am excited to be involved.

The application of BioHavens is as endless as your imagination. Imagine being a homeowner with a pond. You could use a BioHaven to create a floating walkway to a floating vegetable garden that never needs watering! Imagine being a golf course superintendent. You could use a BioHaven to create a floating walkway and gazebo for golfers to enjoy after a round, or turn a BioHaven into the course logo! While aesthetically pleasing and cost effective, BioHavens are fully functional pollutant removers that cleanse water and soak up nutrients.

Being involved with such an incredible technology has been wonderful. After years of learning more and more about the Chesapeake Bay and its obvious non-point source pollution, largely due to the runoff of fertilizers, it is great to know that there is a new, promising solution to a problem that has presently remained unsolved. This new product holds tremendous promise for the land and wildlife management field, from wildlife habitat creation to water treatment. Would you believe me if I told you that a 250 square foot section of BioHaven can remove as many nitrates from a water system as 1 acre of wetlands? It's true.

Our vision is to see the successful implementation of BioHavens throughout the Mid-Atlantic region and beyond, and the majority of my work this summer involves doing just that. ❖

5 things BioHavens do

1. **remove pollutants from a waterway, including nitrates, phosphates, ammonia and heavy metals**
2. **provide critical riparian edge habitat. In fact, the new land mass is used by all kinds of creatures, from microbes to humans**
3. **sequester carbon and other greenhouse gases**
4. **provide wave mitigation and erosion control**
5. **beautify a waterscape**

Ryan Schultze, an Agricultural Business Management major from Montgomery County, is doing his internship this summer with Patriot Land and Wildlife Management Services. For more information about BioHaven Floating Islands, you can visit the company's website at www.PATRIOTLWM.com